

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamishita et al (US 5,064,122) in view of Marelli et al (US 5,224,471).

in regard to Claim 1 Kamishita et al teach a fluid spray head assembly that comprises a fluid spray head (30) has an expulsion channel (see column 3, lines 54-60) with a spray orifice (31) and a spray profile (plurality of 32) are formed in an end wall (top wall of 30 as shown in Figure 3) of the spray head (30), the spray profile (32) comprising non radial spray channels (32 are non radial spray channels) opening out to a central spray chamber (13) disposed directly upstream from the spray orifice (31) and an insert (20) forms an internal nozzle (see where a nozzle effect occurs as fluid flows through "13" past the insert "20" where an area is reduced in size from larger to smaller in Figure 2") and is introduced through the inside of the spray head (30) being disposed in the expulsion channel (see column 3, lines 54-60) so as to form a base surface for the spray profile (plurality of 32) where the central axis (X) of the insert (20) is substantially identical to the central axis (Y) of the expulsion channel (see column 3,

lines 54-60) and where the spray profile (plurality of 32) formed in an end wall (top wall of 30 as shown in Figure 3) of the spray head (30) where the central spray chamber (13) is between the spray orifice (31) of the spray head (30) and the insert (20) wherein the insert (20) is formed separately from the spray head (30; "20" and "30" are separate pieces).

Although Kamishita et al as described above substantially teaches the present invention with the exception of where the spray head comprising centering means for centering the insert where the expulsion channel further including the centering means for centering the insert (centering means having flat walls), and in that the centering means are formed on a surface of the spray head that forms the expulsion channel at a location directly adjacent to a top end of the insert.

However, Marelli et al teach where the spray head comprises centering means for centering the insert (see where centering means are three flat walls of "3" which center "9" of the insert in Figure 3) where the expulsion channel (11) further includes the centering means (see flat walls of "3" in Figure 3) for centering the insert (9, 10; see also column 3, lines 28-35), and in that the centering means are formed on a surface of the spray head that forms the expulsion channel at a location immediately adjacent to a top end of the insert, where the top end of the insert faces the spray profile.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the present invention was made to have substituted the centering means of Kamishita et al with the centering means that has three flat walls taught by Marelli et al

in order to provide a manner in which to better secure the insert under pressurized spraying.

Examiner notes that the centering means 15 of Kamishita et al is located where the top end of the insert faces the spray profile and when combined with Marelli et al would teach the limitations of the present invention. Examiner notes that the centering means of Kamishita et al can be made to be flat walls taught by Marelli et al as an alternative means for securing the insert within the spray head. Examiner further notes that the centering means of Kamishita et al is taught to have expulsion channels and where the insert has a top end that faces a spray profile formed in an end wall of a spray head (see Figures 2, 3 and 5 of Kamishita et al where the spray profile is shown with hidden lines).

In regard to Claims 2-4, the combined device of Kamishita et al in view of Marelli et al also teach where the centering means comprises at least one projection (see flat surface of "3" in Figure 3 of Marelli) and preferably three, the diameter of the inscribed circle defined by the projections are substantially identical to the diameter of the insert (9, 10; see also column 3, lines 28-35 of Marelli), the expulsion channel (11 of Marelli) includes the three flat surfaces (as shown in Figure 3; see where "11" has flat surfaces of Marelli) that are distributed symmetrically about the channel (11 of Marelli) where the flat surfaces co-operate with the insert (9, 10; see also column 3, lines 28-35 of Marelli) so as to center it relative to the expulsion channel (11 of Marelli) and the access of the expulsion channel (11 of Marelli) to the spray channels (16 of Marelli) are formed

between the projections or flat surfaces (see the access openings of "11" bounded by the flat surfaces of "3" in Figure 3 of Marelli).

In regard to Claims 8 and 10, the combined device of Kamishita et al in view of Marelli et al further teach where the spray head of the spray head assembly can be manufactured from a common mold cavity. It is noted that Claim 8 is a product by process claim. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process (See MPEP 2113). Marelli et al is a fluid dispenser device which is characterized in that it includes a spray head assembly of the present invention (as recited in Claims 1; see entire disclosure of Marelli et al.).

In regard to Claim 11, the combined device of Kamishita et al in view of Marelli et al additional teach a fluid spray head assembly that comprises a spray head (30 of Kamishita et al) having an expulsion channel (see column 3, lines 54-60 of Kamishita et al) with a spray orifice (31 of Kamishita et al) and a spray profile (plurality of 32 of Kamishita et al) are formed in an end wall (end wall of 303 of Kamishita et al) of the spray head (30 of Kamishita et al), the spray profile (plurality of 32 of Kamishita et al) comprising spray channels (32 of Kamishita et al) that open out to a central spray chamber (13 of Kamishita et al) that is disposed upstream of the spray orifice (31 of Kamishita et al) where an insert (20 of Kamishita et al) is disposed in the expulsion channel (see column 3, lines 54-60 of Kamishita et al) so as to form a base surface for the spray profile (plurality of 32 of Kamishita et al) forming an internal nozzle and the

spray head (30 of Kamishita et al) is configured with an upstream opening to permit the insert (20 of Kamishita et al) to be introduced inside of the spray head (30 of Kamishita et al) from the upstream opening in the spray head (30 of Kamishita et al), and wherein, a central axis of the insert (20 of Kamishita et al) is substantially identical to a central axis of the expulsion channel (see column 3, lines 54-60 of Kamishita et al) and at least one radially projection extending from the inside wall of the expulsion channel (see column 3, lines 54-60 of Kamishita et al) and abutting the insert (centering means of Marelli et al) so as to substantially align the central axis of the insert (centering means of Marelli et al) with the central axis of the expulsion channel (see column 3, lines 54-60 of Kamishita et al) wherein the at least one radial projection extends from the inside wall at a location immediately adjacent to a top end of the insert (centering means of Marelli et al), wherein the top end of the insert (20 of Kamishita et al) faces the spray profile (plurality of 32 of Kamishita et al) formed in the end wall of the spray head (30 of Kamishita et al) and wherein the central spray chamber (13 of Kamishita et al) is between the spray orifice (31 of Kamishita et al) of the spray head (30 of Kamishita et al) and the insert (20 of Kamishita et al) where the insert (20 of Kamishita et al) is formed separately from the spray head (30 of Kamishita et al).

In regard to Claims 12-19, the combined device of Kamishita et al in view of Marelli et al also teach where the spray channels (32 of Kamishita et al) are non-radial, where at least two additional projections (centering means of Marelli et al) extending from the inside wall of the expulsion channel (see column 3, lines 54-60 of Kamishita et al) and abutting the insert (20 of Kamishita et al) so as to substantially align the central

axis of the insert (20 of Kamishita et al) with the central axis of the expulsion channel (see column 3, lines 54-60 of Kamishita et al) and where the diameter of an inscribed circle defined by the three projections (centering means of Marelli et al) is substantially identical to a diameter of the insert (20 of Kamishita et al) and the three projections are flat surfaces (see flat surfaces of centering means taught by Marelli et al in Figure 3) distributed symmetrically about the central axis of the expulsion channel (see column 3, lines 54-60 of Kamishita et al) where access from the expulsion channel (21) to the spray channel (32 of Kamishita) is between the projections (flat wall surfaces of "3" of Marelli et al that constitute the centering means as shown in Figure 3) and the spray head (30 of Kamishita et al) is coupled to a dispensing member (see abstract of Kamishita).

With further regard to Claim 19, the combined device of Kamishita et al in view of Marelli et al teach where the centering means has three projections (see centering means of Marelli et al in Figure 3), the diameter of the inscribed circle defined by the projections being substantially identical to the diameter of the insert (20 of Kamishita et al).

In regard to Claim 20, the combined device of Kamishita et al in view of Marelli et al teach where the centering means (centering means of Marelli et al) contacts the insert at the location immediately adjacent to the top end of the insert (insert of Kamishita et al). Examiner notes that the insert of Kamishita et al is immediately adjacent to the top end of the insert as described above.

In regard to claims 5-7 and 9, the combined device of Kamishita et al in view of Marelli et al as taught above discloses the claimed invention except for the following: a central axis of the insert being offset from the central axis of the expulsion channel by a distance of less than 0.08 mm, and preferably less than 0.03 mm; a spray chamber having a diameter of 1 mm; a spray orifice having a diameter of 0.3 mm; and the standard deviation of the offset between the central axis of the insert relative to the central axis of the expulsion channel being less than 0.05 mm and preferably less than 0.02 mm.

It would have been an obvious for having ordinary skill in the art at the time the present invention was made to try to offset the central axis of the insert from the central axis of the expulsion channel by a distance of less than 0.08 mm, and preferably less than 0.03 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. and it appears that the invention would perform equally well with the central axis' not being offset from one another where offsetting the central axis' would provide a benefit that would ensure a spray would be directed past the projections through the expulsion channel.

It would have also been an obvious matter of design choice to provide for a spray chamber having a diameter of 1 mm and a spray orifice having a diameter of 0.3 mm as providing for such dimensions of the spray chamber and spray orifice, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. and it

appears that the invention would perform equally well if the dimensions of the spray chamber of 1 mm and the spray orifice of 0.3 mm were larger where the sizing of such benefits in atomization of a spray fluid through the restricted opening for directing the fluid.

It would have been a further obvious matter of design choice to provide for a standard deviation of less than 0.05 mm and preferably less than 0.02 mm for the offset between the central axis of the insert relative to the central axis of the expulsion channel, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art and it appears that the invention would perform equally well without an offset between the insert and expulsion channel where offsetting the central axis' would provide a benefit that would ensure a spray would be directed past the projections through the expulsion channel.

Response to Arguments

Rejection under 35 USC § 103

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection with new interpretation of the Kamishita et al reference.

Examiner notes that the Kamishita et al reference teaches having a centering means located near a top end of the spray head where the spray head has a spray profile in an end wall of the spray head.

However, the device of Kamishita et al does not teach where the centering means are walls that hold the insert in such a manner that permit it to have expulsion channels.

On the other hand, Marelli et al teaches having a centering means that are walls for centering an insert.

Therefore, it is obvious to one having ordinary skill in the art at the time the present invention was made to have substituted the centering means of Kamishita et al with the centering means of Marielli to provide for an alternative means for securing an insert within a spray head.

Examiner notes that the centering means of Kamishita et al is permits for the expulsion channel of Kamishita et al to be located adjacent to a top end of an insert and the top end of the insert faces a spray profile which is formed in the end wall of the spray head.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Goth (US 4,187,985), Erb et al (US 4,161,281) and Braun (US 3,724,763) drawn to spray devices with inserts.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trevor McGraw whose telephone number is (571) 272-7375. The examiner can normally be reached on Monday-Friday (2nd & 4th Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571) 272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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